

Remarks

Claims 1-22 are pending in this application. In view of the foregoing amendments and the following remarks, reconsideration and allowance of all the rejected claims are requested.

Allowable Subject Matter

Applicants note with gratitude the Examiner's indication that claims 6-8, 11, 12, 16 and 17 are allowable if rewritten in independent form.

Information Disclosure Statement

Applicants thank the Examiner for considering the references submitted in the Information Disclosure Statements filed on November 26, 2003, as evidenced by the signed and initialed Form PTO-1449.

Rejection Under 37 U.S.C. § 102

Claims 1, 9, 10, 13-15, 18 and 20 are rejected under 35 U.S.C. § 102(b) as being anticipated by Katzir et al. (U.S. Patent Application Publication No. 2001/0010536 A1). Applicants traverse this rejection on the following basis.

Independent claims 1, 13, 15 and 20 recite the features of a positioning structure configured to move the substrate relative to the projection system during exposure by the patterned beam and an optical structure configured to move the projected beam relative to the projection system during at least one pulse of the pulsed beam such that the projected beam is shifted in synchronism with the movement of the substrate during said at least one pulse, among other things. In one exemplary embodiment, errors caused by the movement of the substrate relative to the projection system during a pulse of radiation may be reduced by providing one or more apparatus to shift the patterned projection beam in synchronism with the movement of the substrate during a pulse of radiation (see paragraph 0054 of the specification).

The examiner alleges that Katzir et al. discloses that "the position structure is what moves substrate 40" (see paragraph number 4 on page 4 of the April 22, 2005 office action). Even if the substrate is capable of moving, Katzir et al. is deficient because it fails to teach or

suggest moving the substrate *during exposure by the patterned beam*. Katzir et al. is directed to coordinating the relative directions and velocities of the projected image of the acoustic wave in modulator 32 and the velocity of scanning through rotating polygonal mirror 96 to effectively “freeze” the image of the acoustic wave in modulator 32 on the substrate 40 (see Fig. 4 and paragraph 163 of Katzir et al.). It appears that the substrate 40 remains stationary while the modulator 32 and rotating polygonal mirror 96 are adjusted to freeze the image on the non-moving substrate in order to correct for timing errors that result in unevenness or drift in the location of an edge for systems writing a raster pattern.

Additionally, since Katzir et al. fails to teach or suggest moving the substrate *during exposure by the patterned beam*, it follows that Katzir et al. also fails to teach or suggest an optical structure configured to move the projected beam relative to the projection system during at least one pulse of the pulsed beam such that the *projected beam is shifted in synchronism with the movement of the substrate* during said at least one pulse.

Since Katzir et al. neither discloses nor suggests the invention claimed in independent claim 1 and its dependent claim 9, or the invention claimed in independent claim 13 and its dependent claim 14, or the invention claimed in independent claim 15 and its dependent claim 18, or the invention claimed in independent claim 20, these claims clearly are not anticipated by Katzir et al. Thus, reconsideration and allowance of these claims are requested.

Rejection Under 35 U.S.C. § 103

Claims 1-5, 9, 10, 13-15, 18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Loor et al. (U.S. Patent No. 6,204,875) in view of Gelbart. (U.S. Patent No. 4,577,932). Applicants respectfully traverse this rejection on the following basis.

Independent claims 1, 13, 15 and 20 recite the features of a positioning structure configured to move the substrate relative to the projection system during exposure by the patterned beam and an optical structure configured to move the projected beam relative to the projection system during at least one pulse of the pulsed beam such that the projected beam is shifted in synchronism with the movement of the substrate during said at least one pulse, among other things. In one exemplary embodiment, errors caused by the movement of the substrate relative to the projection system during a pulse of radiation may be reduced by providing one or more apparatus to shift the patterned projection beam in synchronism with

the movement of the substrate during a pulse of radiation (see paragraph 0054 of the specification).

The examiner alleges that De Loor et al. discloses that “the position structure includes what moves the photosensitive material (substrate) on 107” (see paragraph number 2 on page 2 of the April 22, 2005 office action). Even if the substrate is capable of moving, De Loor et al. is deficient because it fails to teach or suggest moving the substrate *during exposure by the patterned beam*. Rather, De Loor et al. discloses that the image of the modulator plane (i.e., the plane where the modulating elements of modulator 103 are located) is scanned along a line on the light sensitive material on focal plane 107 by means of scanning subsystem that *provides relative motion* between the image of the light modulator 103 and the sensitized material on the focal plane 107 (see De Loor et al. at col. 7, lines 3-7). While there appears to be relative motion between the light modulator 103 and the sensitized material on the focal plane 107, De Loor et al. is silent regarding moving the sensitized material on the focal plane 107. It appears that the sensitive material on the focal plane 107 remains stationary while the data in the light modulator 103 is adjusted to catch up with the scan speed (see De Loor et al. at col. 8, lines 61-65).

Additionally, since De Loor et al. fails to teach or suggest moving the sensitized material on the focal plane 107 *during exposure by the patterned beam*, it follows that De Loor et al. also fails to teach or suggest an optical structure configured to move the projected beam relative to the projection system during at least one pulse of the pulsed beam such that the *projected beam is shifted in synchronism with the movement of the substrate* during said at least one pulse.

The Examiner further acknowledges that De Loor et al. is deficient because it fails to disclose that the “projected beam is substantially stationary relative to the substrate during said at least one pulse” (see paragraph number 2 on page 2 of the April 22, 2005 office action). The Examiner relies on Gelbart for disclosing this feature. However, the portion of Gelbart that is cited for disclosing this feature column 2, lines 25-32, is silent regarding this feature.

Additionally, Gelbart fails to provide the deficiencies of De Loor et al. discussed above. In particular, while Gelbart appears to disclose moving material 7 to record a new bit pattern on with a new light pulse, Gelbart is silent regarding moving the substrate *during*

exposure by the patterned beam. Rather, it appears that material 7 is moved between exposures. As a result, De Loor et al. and Gelbart, both alone and in combination, are deficient for failing to teach or suggest the features of positioning structure configured to move the substrate relative to the projection system during exposure by the patterned beam and an optical structure configured to move the projected beam relative to the projection system during at least one pulse of the pulsed beam such that the projected beam is shifted in synchronism with the movement of the substrate during said at least one pulse.

In view of the foregoing differences between independent claims 1, 13, 15 and 20 and the cited art, Applicants respectfully submit that these claims are not obvious under 35 U.S.C. § 103, based on De Loor et al. in view of Gelbart. Thus, independent claims 1, 13, 15 and 20 are allowable over these references and dependent claims 2-5, 9, 10, 14, 18, 21 and 22 are allowable at least by virtue of their dependency. Reconsideration and allowance of these claims are requested.

Having addressed the foregoing rejection, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

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Respectfully submitted,



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